

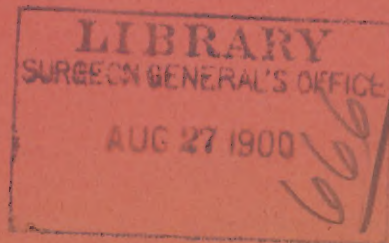
New York Filter manu-
facturing Company

New York Filter Manufacturing Company

Beard Building, 120 Liberty Street

New York

1897



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September 1, 1897.

WE FURNISH AT LOWEST PRICES



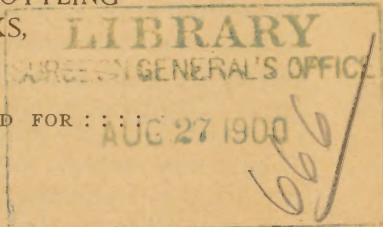
Pressure Filters, Gravity Filters, Vertical Filters,
Horizontal Filters, Stirring Devices for Washing,
or our Exclusive Patented Sectional Washing Device

: : : : FOR PURIFYING THE WATER SUPPLY OF : : : :

WATER WORKS, CITIES, TOWNS, VILLAGES, PUBLIC AND PRIVATE INSTITUTIONS,
SUGAR REFINERIES, ROLLING MILLS, BREWERIES, LABORATORIES, CHEMICAL
WORKS, PAPER, SILK, WOOLEN AND COTTON MILLS, BLEACHERIES,
DYE-HOUSES, LAUNDRIES, HOTELS, CLUBS, BOTTLING
ESTABLISHMENTS, SODA WATER WORKS,
PRIVATE RESIDENCES,

: : : : AND VARIOUS PLACES WHERE WATER IS REQUIRED FOR : : : :

BOILERS.



OUR FILTER POSITIVELY REMOVES ALL GREASE FROM CONDENSED STEAM WATER.

SEE LIST ON PAGE 23.

Aggregate Daily Filtering Capacity up to present time, over 300,000,000 Gallons.



The Appellate Court has decided that we have the sole right, under our patent
No. 293,740, to use a coagulant in a continuous filtration process.

PURE WATER

Absolutely pure water is seldom found in nature, as it so readily absorbs impurities from the air and soil with which it comes in contact; even the rain which falls in the open country contains a trace of ammoniacal salt, and the so-called "pure water" of natural springs is often impregnated to a great extent with soluble substances derived from the rocks it passes over. If the water is taken from a lake or pond it is generally discolored and stained by the roots of trees, peat, leaves, etc., and contains impurities of both a vegetable and organic nature, which it holds both in solution and suspension. If taken from a brook or river it usually contains, in addition to the impurities stated, sewage and refuse from mills, factories, etc., and is then capable of spreading typhoid and malarial fevers and kindred diseases of a zymotic nature. But fortunately all these impurities can be removed, and we are doing it every day in all parts of the country, making the water as clear, bright and sparkling as Appolinaris. We accomplish this by scientifically applied mechanical Filtration, and we are frequently asked the three following questions:

First—What is Mechanical Filtration?

It is chemical sedimentation, assisted or rapidly secured by first coagulating, agglomerating or massing together the impurities and *Bacteria* into particles of such size that they are then caught and retained on the top or surface of a sand filter-bed.

The right to employ this coagulating process in connection with a Filter in a continuous manner is covered by a patent owned exclusively by our Company, and the patent has been sustained by the Court of Appeals.

Second—How and with what is Coagulating Done?

The water, by the "New York" system, is prepared for filtration by a delicate process (covered, as above stated, by our patent) which is an ingenious adaptation of nature's methods.

One of the most common, active and efficient of the earthly salts used by nature in purifying water is alumina. It is not infrequently used as a water purifier by many people in sections of the country where the water is clayey. The merest trace is all that is required, and this is supplied with the utmost accuracy and nicety by our process alone. Its action, briefly stated, is this: It changes into tangible form the impurities in solution, and gathers together these and the exceedingly fine particles of clay into masses that can be filtered out. *It is important to understand that the coagulant is removed along with the impurities; not a trace of it remains in the filtered water.* This fact is known and attested by chemists and sanitarians the world over.

The action of the alumina is almost instantaneous, and if the water is not forced (*downwards*) through the Filter at a greater speed than 4 8-10 inches per minute, or three gallons per minute for each square foot of filter-bed surface, on which basis the capacity of the Filter is rated, the coagulant, alumina in the form of a solution, has time to unite with the carbonate of lime which is in all natural waters, and hydrate of alumina is set free; this is a perfectly harmless, white translucent jelly which settles down on the surface of the sand filter-bed, forming a fine coating on same and entangling with it all the suspended impurities, *Bacteria* and organic coloring matter in the water, but leaving the carbonic acid, which was combined with the carbonate of lime, dissolved in the water, to which it gives a refreshing and agreeable taste, free from that flatness so characteristic of boiled or distilled water which has lost its carbonic acid.

The mass of jelly, *Bacteria* and impurities is removed from the Filter daily by simply sending the water back (upwards) through the sand filter-bed, and thus flushing out the impurities through the waste pipe in top of the filter, the attrition thoroughly scouring the sand-bed, and after each washing the filter-bed is as good as new.

The device for forming and automatically feeding the coagulant solution is very simple, and directions for operating it and the Filter will be found in the Catalogue. (See pages 7, 8, 14.)

Third—What quantity of Coagulant is required?

For most waters one pound of coagulant is sufficient for 14,000 gallons of water, or one-half grain to the gallon of 58,333 grains.

This is an infinitesimal amount, and if the water is not forced through the Filter at a greater speed than the 4 8-10 inches per minute, or three gallons per minute for each square foot of filter-bed surface, *no trace of the coagulant can be found in the filtered water, even by analysis*, as repeatedly testified to by prominent chemical and sanitary experts.

Of course, if the capacity guaranteed for the Filter on the above-named basis is exceeded, the results will not be satisfactory.

For the convenience of our customers, we carry in stock a supply of Coagulant specially manufactured for us from our own formula, which we have found to give the best results in connection with water purification.

We do not claim that our Filters and Processes will work miracles or operate without any attention whatsoever, but ten years practical Filter Engineering, and the possession of over 100 patents formerly owned by the well-known Hyatt, National, American and Blessing Filter Companies, enable us to embody in our New York Filter the best features of all. We can furnish Pressure Filters, Gravity Filters, Vertical Filters, or Horizontal Filters with any of the known Stirring Devices for washing. Our exclusive Sectional Washing Device, however (a description of which will be found in the Catalogue), does away with all the complicated devices necessary in other methods of washing, and requires no power or machinery for stirring the filter-bed while cleansing the Filter. This, of course, means saving of money, time and water. This process, as well as all other washing methods known, is covered by our patents.

Other Filter literature, reprints, reports, etc., will be furnished upon application.

HOUSE FILTERS.

One of the luxuries of filtered water is, that where a nice porcelain-lined bath-tub is used and new sanitary improvements in the way of plumbing are put in the house, they are never stained up and made unsightly by the mud found in most water supplies, nor are the valves throughout the house cut out by the sand and grit. The saving of expense in connection with repairs to plumbing, valves, etc., soon pays for the cost of the Filter.

The Filter is connected with the main supply pipe in the basement or cellar of a residence or other building. *All of the water entering the premises passes through the Filter, is thoroughly filtered and purified, and is drawn bright, clear and sparkling from every spigot.*

The strainer employed in the New York Filter for preventing the escape of sand with the filtered water, is so constructed that it can not become clogged, thus insuring the perfect operation of the Filter.

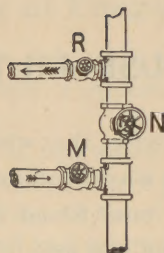
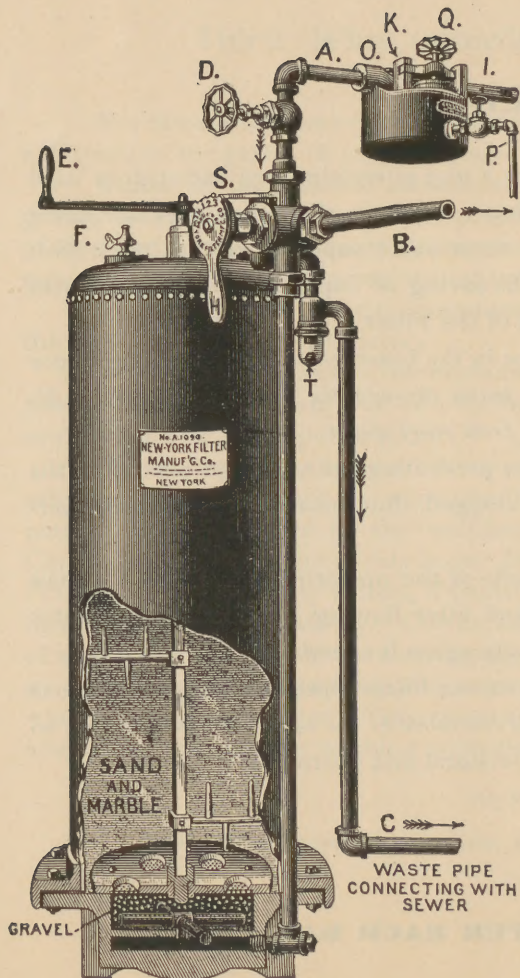
The Filter is cleansed by simply turning the handle of the operating valve, which allows the water to enter the Filter in the reverse direction, and after flowing for about ten minutes the dirt will all be washed out and the Filter will be ready again for service.

We give herewith an illustration and description of our Filter especially designed for use in private residences. *The entire operation of the Filter is controlled by one valve, and is therefore so simple that the most ignorant domestic can readily understand and operate it.*

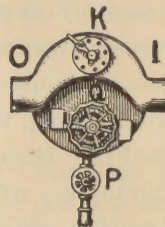
Send us the information requested by questions on page 31.

For sizes, capacities, etc., see page 30.

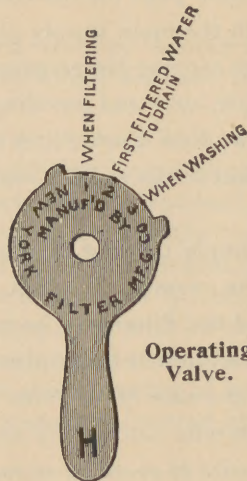
BE SURE AND WASH FILTER EACH DAY.



House Service Pipe and Connections to Filter } Not furnished by us.



TOP-VIEW OF COAGULATING TANK



Operating Valve.

Be Sure and Wash Filter Each Day.

HOUSE FILTERS.

12 in. diam.,	$\frac{3}{4}$ in. connections.
16 " "	$\frac{3}{4}$ " "
20 " "	I " "

See Schedule of Capacities, Etc.,
Page 30.

DIRECTIONS FOR CONNECTING HOUSE FILTERS.

Connect the opening on the coagulating tank marked *I* and the outlet pipe from Filter marked *B* to the house service pipe, placing a valve *N* between the connections and valves *R* and *M* in each branch, thus forming a by-pass; if a pump is used connect pipe *I* to discharge pipe of pump, and force the water through Filter. Never connect suction pipe of pump to Filter.

Connect the side of the tank marked *O* with the inlet pipe to Filter marked *A*, using the two nipples and union, which are furnished for this purpose.

Connect the waste pipe *C* with the main drain pipe or sewer.

Put in the filtering material through the 2-inch opening at top of Filter to within 6 inches of the top. The filtering material should be thoroughly washed before attempting to filter (See directions for Washing).

DIRECTIONS FOR COAGULATING TANK.

To fill the coagulating tank, close the lever valve *K*, remove the cover *Q*, and drain out the solution from the tank, which can be done by opening the waste valve *P*. Then fill the tank with crystal or lump alum, and the interstices between the lumps of alum with water, after which replace the cover, and open the lever valve *K*—say one hole on the dial. *To open this valve turn the lever in a direction opposite to that traveled by the hands of a watch.*

The quantity of coagulant used can be accurately regulated by adjusting the lever valve *K*. Usually this valve should be set at one hole.

The orifices in the lever valve *K* being small are liable to become obstructed with coarse substances in the unfiltered water, and to keep them free, frequently before filling the alum tank the lever valve *K* should be opened wide, and then by opening the waste valve *P* a strong current of water will pass through the orifices, thus freeing them from any obstructions.

DIRECTIONS FOR OPERATING HOUSE FILTERS.

Close valve *N*, open valves *R*, *M* and *D*, place the handle *H* of the OPERATING valve so the pointer *S* will be in the centre of line opposite figure No. 1 on the dial (see detail), which

is the proper position for filtering. The water will then enter the Filter, pass down through the filtering material and out through the filtered water pipe *B* to the house service; also open lever valve *K* in top of Coagulating Tank—say one hole on the dial—see directions for Coagulating Tank.

DIRECTIONS FOR WASHING HOUSE FILTERS.

Be Sure and Wash Filter each Day. When washing be sure and close the alum valve *K*. Move the handle *H* of the operating valve so the pointer *S* will be in the centre of line opposite figure 3 on the dial, when the water is seen flowing out through the sight glass *T*. The crank *E* connected with the agitating shaft should be turned round for a few minutes, or until the water runs clear in the sight glass, or as clear as the unfiltered water. Then move the handle *H* so the pointer *S* will be in line with the figure 2 (see detail); let the water run to sewer through the sight glass *T* several minutes, or until the water shows bright. While so running, shake the crank *E* until it becomes rigid. This sudden jarring will pack the filtering material.

As soon as the water runs bright through the sight glass *T* move the handle *H* so the pointer *S* will be in line over the figure 1, which is its proper position when filtering; the water can then be drawn for use. The Filters should be washed once each day.

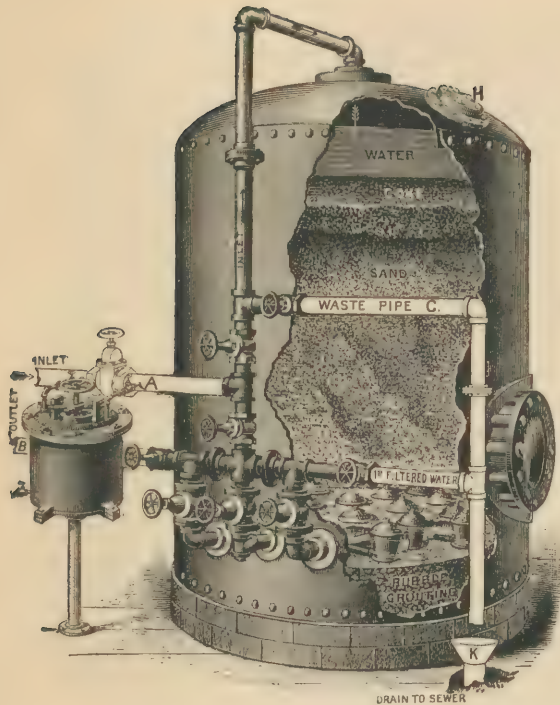
Do not expect perfect results if the capacity guaranteed is exceeded.

TO AERATE THE FILTER BED.

It is desirable to frequently drain out the water from the Filter and allow it to fill up with air for the purpose of sweetening and purifying the filtering material. To accomplish this desired result, move the handle *H* of the operating valve so that the pointer *S* will be in line with the Fig. 2. After allowing the water to flow for say one minute, close the angle valve *D* and open the air valve *F*. The water will then siphon out of the Filter and air take its place. Five or ten minutes is sufficient time for this operation.

Close the air valve *F* and then open the angle valve *D*. Let the Filter fill with water and run to the sewer through sight glass *T* until it runs bright, then move the handle *H* so the pointer *S* will be in line with Fig. 1. The valves will then all be in proper position for filtering.

SECTIONAL WASHING.



In the Sectional Washing Filters shown in this cut, also on pages 10, 11, 12 and 15, the wash water, *under pressure*, enters the Filter at bottom, passes up and out at top; the entire force of this reverse current used in washing is directed against one-third of the bed only, for about five minutes, then it is shut off and the central one-third of the bed is scoured in the same manner; lastly the remaining one-third is washed

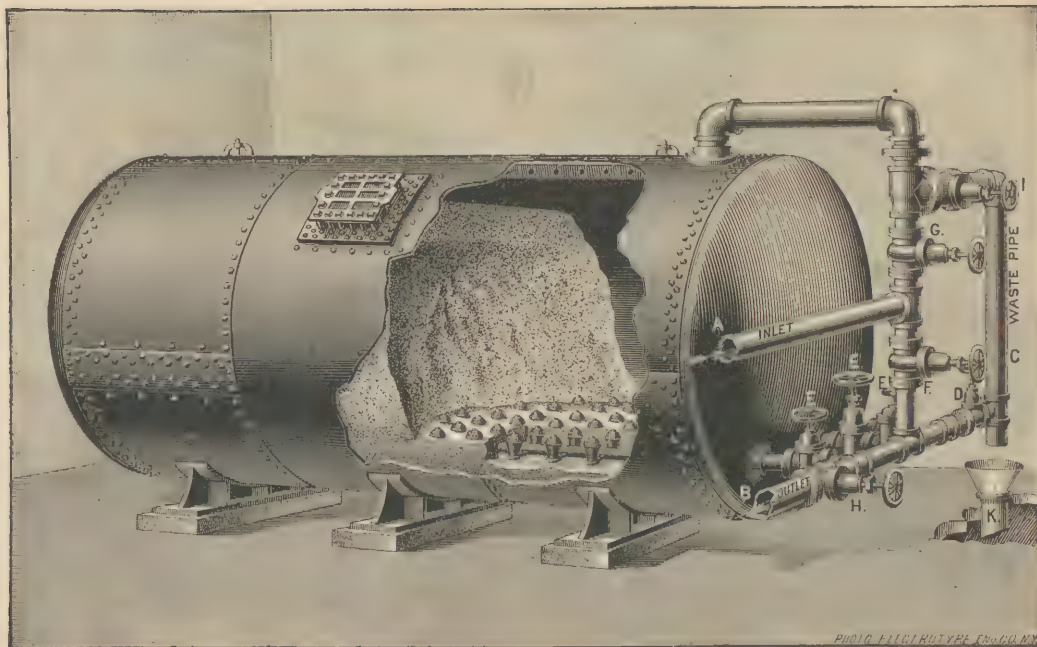
By this system of washing the Filter-bed, a thorough attrition and scouring of particles is accomplished, as the entire supply of water and pressure is directed against the one-third of the bed being washed, and no partitions are necessary to divide the bed, as the current is forced up nearly in a straight line. No power or machinery for stirring the bed is required when cleansing Filters by sectional washing. Our patents, however, cover *all* the other washing methods known.

Sectional washing is used in all our Filters over 20 inches diameter.

Vertical Type of Sectional Washing Pressure Filters from 30 inches diameter up to 10 feet diameter.

Also See Cut on Page 11.

Note—The inside and outside parts and filtering material are shipped separately. We do not furnish the cement and rubble used in the bottom of Filters above 30 inches diameter size, nor the waste pipe, broken pipe and unshaded parts shown in cuts. Delivery in all cases f. o. b. cars at our works, Newark, N. J.



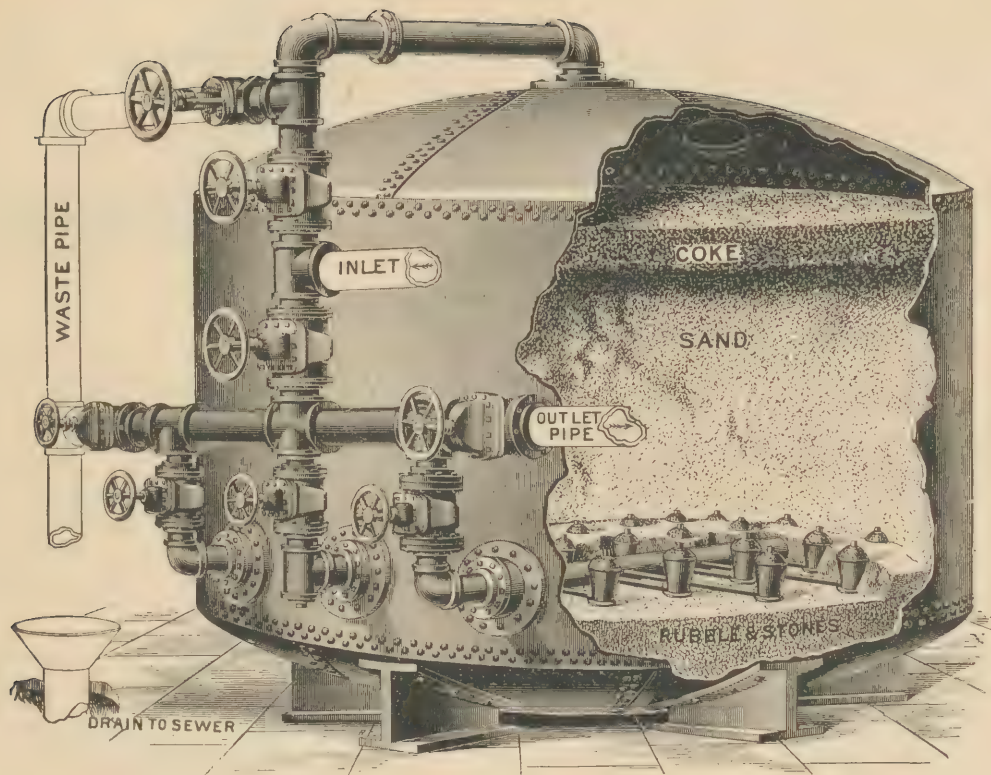
Horizontal Type of Sectional Washing Pressure Filter.

See reading matter on Sectional Washing and Foot Note on page 9.

SUITABLE FOR LARGE MILLS AND CITY WATER WORKS.

Size, 8 Feet Diameter by 20 Feet Long.

When filtering with this type of Filter, the center 6 inch section only is open, the two 4 inch side sections being used in washing only. In washing this type, first wash one 4 inch side section, leaving the other two sections closed; then wash the other 4 inch side section, and lastly wash the middle 6 inch section.



Vertical Type of Sectional Washing Pressure Filter.

See reading matter on Sectional Washing and Foot Note on page 9.

SUITABLE FOR LARGE MILLS AND CITY WATER WORKS.

DIRECTIONS FOR CONNECTING AND OPERATING VERTICAL TYPE OF SECTIONAL WASHING PRESSURE FILTERS.

1st Attach the external piping as shown on cuts *A* and *B*.

2d. Connect the inlet pipe *A* to the main supply pipe, placing a valve *K* in this pipe near the Filter. Connect the outlet pipe *B* with the delivery for filtered water, arranging the necessary valves to form a by-pass, so that Filter can be cut out of service if ever necessary to do so. If a pump is used connect inlet pipe *A* to discharge pipe of pump, and force water through Filter. *Never connect suction pipe of pump to Filter.*

Lead the waste-pipe *C* and the first filtered water pipe *D* into a drain or sewer, providing an open sink or funnel, so that the condition of the wash-water will show when the filtering material has been thoroughly cleansed.

Place the alum or precipitating tank in the position shown at elevation on the cut, and connect the pipes *N* and *M* at either side of the gate valve *K* in the main supply pipe, pipe *N* being the inlet to the alum tank, and pipe *M* being the outlet.

3d. Screw the three inside outlet main pipes (which are drilled with $\frac{3}{4}$ inch holes) securely into the lower flange castings *E*. Fill in the bottom of the Filter with broken stone or brick and cement, up to the line *RR* shown in sectional elevation cuts *C* and *D*. Place the cone valves in the position shown on plan drawings 1 to 7 (sent with Filter), and connect them with the inside main pipes, using the brass connecting pipes which will be found in the box. Then fill in the space between the cone valves and up to the top edge of the valve casting with a good quality of cement grouting, and coat the top of the cement with asphaltum varnish.

4th. When the cement has set thoroughly, replace the side manhole cover (where it exists), and fill in the sand through the opening in the top of Filter to within 15 inches of the top edge of the cylinder, or top row of rivets. Then wash the sand-bed thoroughly (see directions for washing below). Drain out the water and scrape off all fine sand, like quick sand, found on top of bed. Repeat this washing and scraping until all the fine sand in the bed is removed (generally two or three times). Put in a layer of coke 15 inches in depth. Do not wash the coke until the entire filter-bed requires washing. Fasten securely the top manhole plate, and place Filter in operation.

TO FILTER.

Open inlet valve *G* and outlet valves *H*, *E*, *E'*, *E''*, all others being closed, except valves *N* and *M*, on alum tank.

TO WASH FILTER. Be sure and Wash Filter each day.

Close valves *N* and *M* on alum tank. Close inlet valve *G*, outlet valve *H*, valves *E'*, *E''* and *D*, opening valves *I* in waste pipe *C*, *F* and *E*. This will allow the water under pressure to pass down into one section of the outlet system, agitating and washing one-third of the filter-bed, the impurities being carried out through the waste-pipe and delivered into the drain. After washing this section for say 3 or 4 minutes, close valve *E* and open valve *E'*, which will wash the centre section. At the end of 3 or 4 minutes close valve *E'* and open valve *E''*, which will wash the last section. At the end of 3 or 4 minutes open valves *E* and *E'*, thus reversing a current through the entire bed. This should be done say for 2 or 3 minutes. Then close the valve *F*, valve *I* in waste-pipe *C*, and open valves *G* and *D*. This will allow the first filtered water (which will never be perfectly clear and bright) to flow into the drain, and should be allowed to run for 2 or 3 minutes, or until the water becomes clear. Then close valve *D* and open the main outlet valve *H*, which will deliver filtered water for service.

TO OPERATE THE ALUM OR PRECIPITATING TANK.

Remove the little cover in the top of the tank and drain the water out of the tank through the drain-pipe *P*, and fill tank nearly full of crystal or lump alum, filling the interstices between the alum with water, after which replace the little cover.

The pipe *N* is the inlet to the alum tank, and the pipe *M* is the outlet and extends nearly to the bottom of the tank, and each of these branches are provided with a $\frac{1}{4}$ -inch globe valve.

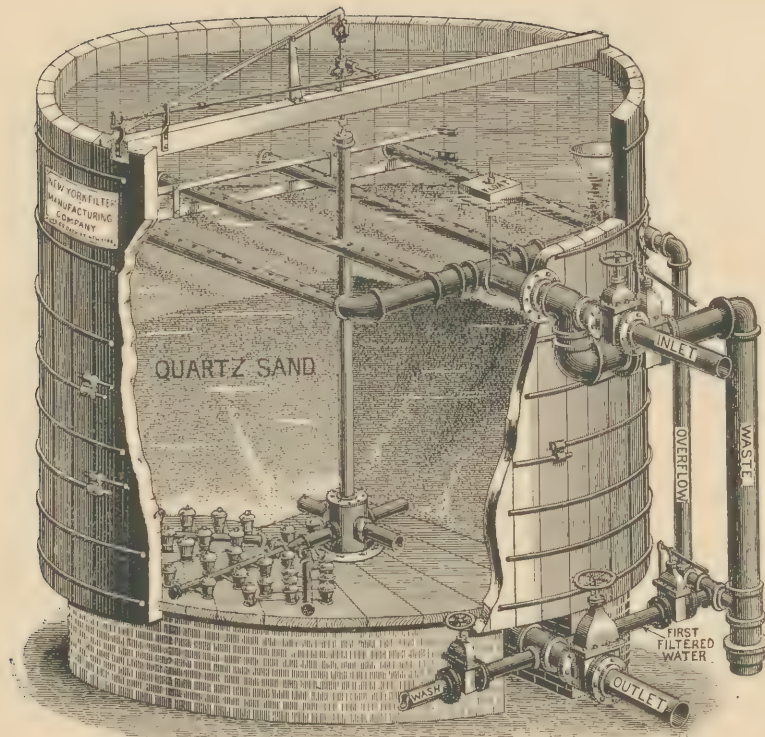
The flow of coagulant depends upon the difference in pressure at the point where the inlet and outlet pipes *N* and *M* enter the main supply pipe. The difference in pressure is produced by closing down the valve *K* one or more turns, or until say one-quarter of a pound of difference in pressure is produced.

The Globe valve in the inlet pipe *N* should be wide open, and all other regulation of the flow of the coagulant is done by closing down the outlet valve in pipe *M*.

Care should be used that only just enough alum is injected into the supply pipe to produce bright filtered water.

Frequently, before filling the alum tank with alum, the pipes *N* and *M* should be blown out, which can be done by opening both of the valves, and then opening the valve in drain pipe *P*, thus allowing a strong current of water to flow through the pipes, which will free them from any sediment that may have collected.

Do not expect perfect results if the capacity guaranteed for Filter is exceeded.



Wooden Sectional Washing Gravity Filter.

Washed in Four Sections. No Stirring Arms, Shafting or Power Required.

See cuts of Water Works Plants, pages 20 to 22.

These Filters are made of 3 inch cypress, dressed, and have round iron hoops fastened with lugs. They are shipped "knocked down."
See schedule, page 30.

LIST OF CITIES USING THE NEW YORK SYSTEM.

75 Water Works Filter Plants. (18 increased.)

TOTAL DAILY CAPACITY OVER 93,000,000 GALLONS TO SEPTEMBER 1ST, 1897.

	Gallons.	Plant Started.
Gadsden, . . . Ala.,	1,325,000	Nov., 1887
Eufaula, "	500,000	Mar., 1897
Little Rock, . . Ark.,	5,000,000	June, 1891
Porterville, . . Cal ,	151,000	April, 1890
Oakland, "	5,000,000	May, 1891
Riverside, "	86,000	Jan., 1892
Greenwich, . . . Ct.,	2,000,000	July, 1877
Atlanta, Ga.,	8,000,000	Aug., 1887
La Grange, "	250,000	Mar., 1893
Milledgeville, . . "	500,000	" 1893
Eatonton, "	500,000	" 1897
Belleville, . . . Ill.,	200,000	July, 1887
Elgin, "	3,500,000	Feb., 1888
Murphysboro, . . "	250,000	July, 1890
Cairo, "	800,000	Jan., 1889
Carlinville, . . . "	100,000	May, 1889
Streater, "	1,500,000	Aug., 1889
Roger's Park, . . "	400,000	Mar., 1889
Terre Haute, . . Ind.,	3,000,000	July, 1890
Warsaw, "	500,000	June, 1896
Davenport, . . . Iowa,	7,500,000	" 1891
Keokuk, "	3,000,000	Jan., 1893
Mt. Pleasant, . . "	500,000	Sept., 1888
Caldwell, Kan.,	500,000	Nov., 1890

	Gallons.	Plant Started.
Independence, . Kan.,	750,000	Dec., 1890
Paola, "	250,000	May, 1887
Oswego, "	500,000	April, 1893
Danville, Ky.,	500,000	Sept., 1894
Hopkinsville, . . "	500,000	Mar., 1897
Shreveport, . . . La.,	1,000,000	Sept., 1889
Brandon, Man.,	1,000,000	Jan., 1893
Winnipeg, "	1,500,000	Dec., 1887
Athol, Mass.,	1,500,000	Oct., 1888
Catonsville, . . Md.,	250,000	Sept., 1890
Mt Clemens, . . Mich.,	1,000,000	Aug., 1888
Brainerd, Minn.,	500,000	Mar., 1897
Lamar, Mo.,	250,000	Dec., 1891
Rich Hill, "	200,000	Mar., 1893
Holden, "	200,000	" 1893
Louisiana, "	302,000	" 1888
Mexico, "	302,000	Jan , 1889
Trenton, "	400,000	Dec , 1889
Washington, . . . "	200,000	Sept., 1888
Asheville, N. C.,	1,000,000	Jan., 1889
Raleigh, "	1,000,000	April, 1887
Salisbury, "	500,000	May, 1889
Charlotte, "	1,000,000	June, 1896
Nebraska City, . Neb.,	400,000	Dec., 1891

		Gallons.	Plant Started.
Exeter, . . .	N. H.,	114,000	Aug., 1887
Bordentown, . .	N. J.,	500,000	July, 1890
Lakewood, . .	"	500,000	Sept., 1889
Long Branch, .	"	3,000,000	June, 1888
Somerville, . .	"	1,400,000	May, 1885
Owego, . . .	N. Y.,	500,000	" 1887
Richfield Springs,	"	350,000	Mar., 1889
Valatie, . . .	"	150,000	Sept., 1894
Kingston, . . .	"	4,000,000	" 1897
Attica, . . .	"	400,000	Oct., 1896
Bucyrus, . . .	Ohio,	500,000	Jan, 1887
Sydney, . . .	"	1,500,000	Sept., 1888
St. Thomas, . .	Ont.,	2,000,000	Mar, 1891
Chatham, . . .	"	1,000,000	April, 1895

		Gallons.	Plant Started.
Beaver Falls, . .	Pa.,	2,000,000	Sept., 1890
New Brighton, .	"	500,000	Oct, 1889
Tunkhannock, .	"	100,000	Aug., 1885
Holmesburg, . .	"	500,000	Dec., 1896
Longueuil, . .	Quebec,	400,000	Sept, 1895
Newport, . . .	R. I.,	4,000,000	May, 1888
Wakefield, . .	"	151,000	Aug., 1889
Westerly, . . .	"	1,500,000	July, 1896
Chattanooga, .	Tenn,	6,000,000	June, 1887
Greenville, . .	Tex,	800,000	Nov., 1888
La Grange . . .	"	250,000	" 1891
Bogota, . . .	U. S. Colom.,	1,000,000	Feb., 1892
Steven's Point, .	Wis.,	500,000	Oct., 1889

Additions to Foregoing City Water Works Filter Plants.

		Gallons.	Plant Started.
Gadsden, . .	Ala.,	1,000,000,	March, 1897
Little Rock, Ark.,	"	1,000,000,	" 1897
Oakland, . .	Cal.,	1,000,000,	July, 1892
Greenwich, .	Conn.,	1,000,000,	Nov., 1894
Atlanta, . .	Ga.,	4,000,000,	March, 1892
Elgin, . . .	Ill.,	500,000,	Aug., 1893
Terre Haute, Ind.,	"	500,000,	July, 1893
Rich Hill, . .	Mo.,	500,000,	Aug., 1893
Holden, . . .	"	200,000,	March, 1893

		Gallons.	Plant Started.
Asheville, . .	N. C.,	500,000,	Oct., 1894
Raleigh, . .	"	500,000,	June, 1892
Salisbury, . .	"	250,000,	Nov., 1895
Somerville, .	N. J.,	1,000,000,	April, 1893
Long Branch, .	"	1,000,000,	" 1894
Owego, . . .	N. Y.,	250,000,	June, 1893
Sydney, . . .	Ohio,	500,000,	Oct., 1892
St. Thomas, Ont.,	"	500,000,	Sept., 1892
Chatham, . .	"	500,000,	May, 1896

Aeration Plants for Purifying and Deodorizing Water in Mains and Reservoirs at:

MEXICO, MISSOURI;	HOBOKEN, NEW JERSEY;	NEW ROCHELLE, NEW YORK;
NORFOLK, VIRGINIA;	HACKENSACK, NEW JERSEY;	BROCKTON, MASSACHUSETTS;
	RICHMOND, KENTUCKY.	

ENDORSEMENTS.

Our Filters and Processes are endorsed by leading sanitary experts, including: C. F. CHANDLER, M.D., Ph.D., Columbia College, N. Y.; PETER TOWNSEND AUSTEN, Ph.D., F.C.S., Prof. of Chemistry, Brooklyn, N.Y. Polytechnic; Dr. HENRY MORTON, Pres't Stevens Institute, Hoboken, N. J.; WM. P. MASON, Prof. of Chemistry, Rensselaer Polytechnic Institute, Troy, N.Y. (see his book "Water Supply"); Dr. WILLIS G. TUCKER, Albany, N.Y. (see his article in *Albany Medical Annals*, April, 1892); Dr. CHARLES G. CURRIER, Bacteriologist, New York (see his article in *American Society of Civil Engineers* for February, 1891).

A Few Samples of Expert Testimony showing the Chemical and Biological Results secured by our Filters
and Processes. Additional Samples Furnished on Application.

**Health Department,
Office of Superintendent, City Hall.**

PROVIDENCE, R. I., June 20th, 1889.

Mr. Whitney Conant, Sec. Long Branch, N. J., Water Works.

I made three tests of the action of your Filters at Long Branch, N. J., as regards the removal of bacteria. The number of organisms contained in one cubic centimetre of water as follows:

Unfiltered....	First test, 259	Second test, 298	Third test, 248
Filtered.....	5	2	3

The sample* from the pond contained 273 organisms.

Yours truly, CHARLES V. CHAPIN, M.D.

Biological result obtained at the Westerly, R. I., Water Works' Filter Plant on a six days' run by Prof. William Main, of Brooklyn, N. Y., April, 1897.

BACTERIA PER CUBIC CENTIMETER.

DATE.	UNFILTERED.	FILTERED.	REMOVED.
April 24th	324	2	99.38 per cent.
" 25th	356	3	99.15 "
" 27th	354	3	99.15 "
" 28th	480	1	99.79 "
" 29th	470	1	99.78 "
" 30th	375	10	97.33 "
Average	393	3.33	99.09

I have not put in the result obtained on the 26th, as when my samples were taken, I found that through some inadvertence the coagulating tank had become exhausted, and the water was coming through highly colored. It was too late in the day to correct the error by waiting till bright water came through.

NOTE.—This shows the advantage of using a coagulant.

Extract from report of Prof. J. M. McCandless to a joint meeting of the Board of Health and Water Commissioners, of Atlanta, Ga., August 7, 1890:

I have the honor to present below a copy of the analysis made on samples of city water, taken at the water works on the afternoon of August 5, 1890.

The sample marked No. 1 was taken from the Harden branch; No. 2 was taken from the intake-pipe leading to the reservoir; No. 3 was taken from the filtered water at the works, and No. 4 is filtered water taken from the city hydrant.

Free ammonia.....	0.02	0.02	0.05	0.05	parts per million.
Albuminoid ammonia, 0.33	0.28	0.04	0.04	"	"
Total solids.....	14.20	10.50	4.07	4.07	grains per gallon.

J. M. McCANDLESS, Analyst.

TORONTO, ONTARIO, August 9, 1891.

I have completed the biological examination of the samples of St. Thomas City water, and have to report the following result:

Sample from well before filtration, 45,000 bacteria per C. C.
Sample from pumping house after filtration, 90 bacteria per C. C.
Sample from tap in fire house was spilt in bringing to Toronto.

The above results may be considered as very satisfactory, showing such a reduction as from 45,000 to 90 bacteria. As a rule 200 bacteria per cubic centimetre are allowable in a first-class water, so that the St. Thomas water supply after filtration would come well within that limit. There is to be noted, however, that filters vary considerably in their filtering power, and to make the results absolutely safe it would be necessary to make an examination at different times. Hoping to be able to do that for you later in the season, I remain,

Yours truly, JOHN J. MCKENZIE.

ENDORSEMENTS—Continued.

From Editorial Column, Pittsburgh Dispatch, Tuesday,
August 7th, 1894.

ANOTHER DEMONSTRATION.

Another demonstration of the preventive value of absolute pure water against typhoid fever comes from Philadelphia.

In Girard College there were up to last year, when the New York Filters were put in, a number of cases of typhoid fever annually. The regular appearance of this disease and the large proportion to the college population finally called for action. The manner in which the remedy was applied and its result are given in the following terse statement of the case by the PHILADELPHIA LEDGER:

"When Dr. Janney was called in, he told the management that nothing could be done with the cases of typhoid fever except to care for them, but that future cases might be prevented by constructing an adequate water filter. After much persuasion and argument this was done, at an expense of a few thousand dollars, and, instead of twenty cases of typhoid fever a year, during the past year there have been no cases at all."

This is the repetition of experience that has been world wide. Adequate and thorough filtration is the most complete, available and economical protection against water-borne diseases, for cities drawing their water supply from streams draining areas of large population. This community, which takes its supply from streams draining practically all of Western Pennsylvania, and whose typhoid fever rate is higher than that of any other city of 100,000 or over, cannot afford to ignore the fact.

Filters specified above were furnished by the New York Filter Co.

Illinois Central Hospital for the Insane.

JACKSONVILLE, ILL., June 15, 1892.

We put in a 6½-ft. Filter in 1885 and in 1886 we put in an 8-ft. Filter. These Filters have been in constant use since and are giving us good satisfaction. We filter all the water used in this institution, amounting to about 100,000 a day. Oftentimes this water comes to our filters turbid and filled with particles of our black soil, and without filtration is hardly fit for any use, but after passing through our filters it comes out as bright and sparkling as the purest spring water. I should not feel that we could get along without our filters.

Yours very truly, H. F. CARRIEL, Superintendent.

The Child's Hospital.

ALBANY, N. Y., August 4, 1892.

We have used your Filter for a long time, and have found it entirely satisfactory.

THE CHILD'S HOSPITAL.

PETER TOWNSEND AUSTEN, PH. D., F. C. S., Professor of
Chemistry, Brooklyn Polytechnic.

The Filter which I put in my house several years ago has worked perfectly. I read at times in the newspapers about the water supply being in a soupy condition from the presence of clay, or having a strong color and a stronger taste, but with the exception that the amount of dirt collected by the Filter is greater at some times than others, there is no variation in its working, and the water supplied to the house is at all times bright and perfectly free from suspended matter, color and taste. The Filter is about as near perfect as anything can be in this world. I have also had occasion during the last ten years to examine, experiment on and work with a number of large plants of your make and have in every instance found them to be practical, efficient and successful. I consider your system of mechanical coagulo-filtration to be the best one we have.

Yours very truly, PETER T. AUSTEN.

Western University of Pennsylvania,
WM. J. HOLLAND, PH. D., D.D., Chancellor,

PITTSBURG, PA., June 14th, 1892.

In reply to your favor of May 27th, I desire to say that I have been using the Filters in my residence for the past year, and they have upon the whole rendered very satisfactory results, even at times when our rivers, owing to freshets, were discharging liquid mud. A very large proportion of the impurities is removed by means of them. I have the honor to be

Very truly yours, W. J. HOLLAND.

West Virginia Hospital for the Insane.

J. S. LOUIS, M.D., Superintendent.

WESTON, W. Va., September 19, 1891.

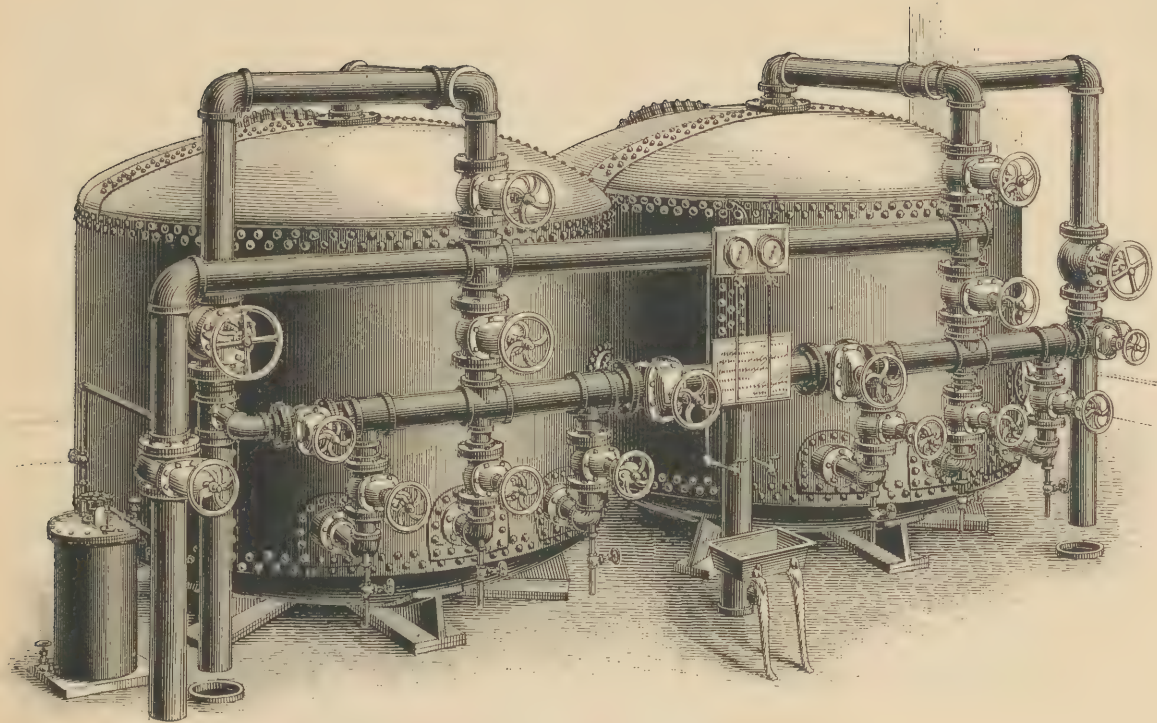
Your favor of the 15th inst. to hand, and have to say in reply that we have been using for two or three months one of your Filters, and so far it has given entire satisfaction.

Yours truly, J. S. LEWIS, M.D., Superintendent.



GRAVITY FILTER PLANT, CITY WATER WORKS, WESTERLY, R. I.

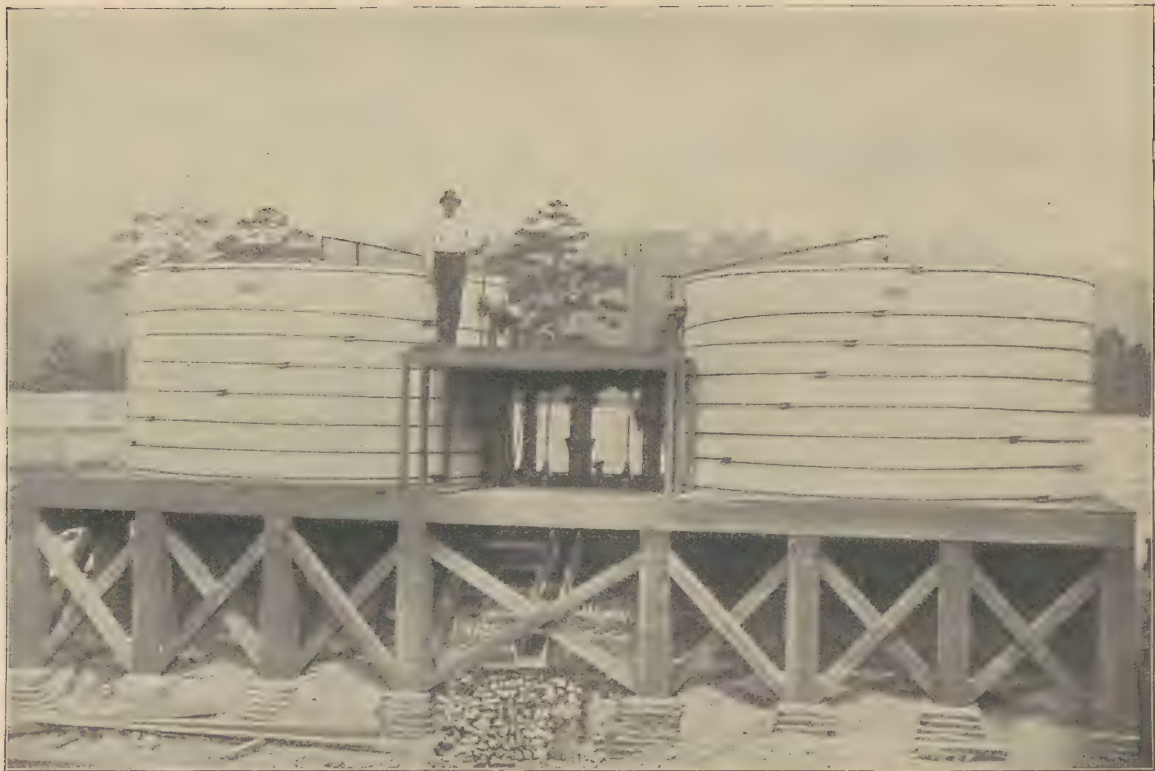
Capacity 1,500,000 gallons in 24 hours. (See Biological Results obtained, page 18.)



PRESSURE FILTER PLANT, BILTMORE, N. C.

Capacity 500,000 gallons in 24 hours.

Estate of GEO. W. VANDERBILT.



GRAVITY FILTER PLANT, CITY WATER WORKS, GADSDEN, ALA.

Capacity 1,000,000 gallons in 24 hours.

The following Lists of Users comprise but a portion of each Trade using our Filters, and do not apply to the Small Filters used in Residences, Bottling Establishments, Etc.

BOILER SERVICE. (See reading matter page 32.)

ARIZONA.
Copper Queen Consolidated Mining Co. Fairbanks.

CALIFORNIA.
Edison Electric Light and Power Co. San Francisco.

CONNECTICUT.
James L. Howard & Co. Hartford.

ILLINOIS.
Grasselli Chemical Co. Chicago.
Wahl Bros. "
Crane & Co. "
S. Chicago City Railway Co. "

KENTUCKY.
Trustees of Covington Reservoir, Newport.

LOUISIANA.
New Orleans Traction Co. New Orleans.
New Call Building "

MAINE.
Rumford Falls Paper Co. Rumford Falls.
Otis Falls Pulp & Paper Co., Livermore Falls

MARYLAND.
Claremont Abattoir Co. Baltimore.
Pennsylvania Steel Co. Sparrow's Point.
Maryland Steel Co. "

MASSACHUSETTS.
Border City Mfg. Co. Fall River.
Howland Mills New Bedford.
Beebe, Webber & Co. Holyoke.
Springfield Steel Railway Co. Springfield.
Wiggin & Steven Edgeworth.

MINNESOTA.
Minnesota Packing & Provision Co. So. St. Paul.

MISSISSIPPI.
Chester R. McFarland Vicksburg.

MISSOURI.
St. Joseph Water Works. St. Joseph.
Chain of Rocks Pumping Station. St. Louis.

NEW HAMPSHIRE.
Concord Water Works. Concord.

NEW JERSEY.
Clark Mile End Spool Cotton. E. Newark.

NEW JERSEY—Continued.
Suburban Elec. Light Co. Elizabeth.
Welsbach Incandescent Gas Light Co. Gloucester City.
Jas. Chadwick & Bro. Greenville.
Edison General Elec. Co. Harrison.
Eureka Fire Hose Co. Jersey City.
Elizabethport Steam Cordage

Co. Elizabethport.
Barrett-Brown Building. Newark.
Blanchard Bros. & Lane. "
Celluloid Mfg. Co. "
Kerr Thread Co. "
Clark Thread Co. "
P. Ballantine Sons. "
Consolidated Traction Co. "
The Fred'k Crane Chem Co. Short Hills.

NEW YORK.
Quinn & Nolan Ale Brewing Co. Albany
Beaverwyck Brewing Co. "
Taylor Brewing Co. "
Port Orange Brewing Co. "
Albany Perforated Wrapping Paper Co. "
R. K. Townsend, Furnace. "
Rathbone, Sard & Co., Stove Works. "
Albany & Greenbush Bridge Co. "
Geo. H. Thacher & Co. "
Albany Water Works "
Worthington Hydraul. Wks. Brooklyn.
Department of City Works. "
Brooklyn Warehouse and Storage Co. "
Ridgwood Pumping Station. "
Chelsea Jute Mills. "
Buffalo Asylum Buffalo.
Port Orange Paper Co. Castleton.
De Land & Co. Fairport.
Booth & Co. Gloversville.
Fred. Swarts Greenbush.
Marks Mfg. Co. Herkimer.
High Bridge Pumping Station, second order. New York City.

NEW YORK—Continued.
Central Trust Co. New York City.
Croton Aqueduct Stat., 98th St., and Ninth Ave. "
New York Lighting Co. "
Hotel Albemarle. "
" Majestic. "
" Winthrop. "
Syracuse Steel Foundry Co. Syracuse.
Frazer, Jones & Co. "
Whitman & Barnes Mfg. Co. "
J. W. & W. L. Gardner. Troy.
Thomson-Houston Elec. Co. Yonkers.

OHIO.
Central Thomson-Houston Co. Cincinnati.
Case Library. Cleveland.
National Carbon Co. "
Nat. Malleable Castings Co. Toledo.
American Tube & Iron Works. Youngstown.

PENNSYLVANIA.
Carnegie Steel Co. Cochrane Stat.
Harrisburg City Pumping Plant. Harrisburg.
Carnegie, Phipps & Co. Homestead.
W. Dewees Wood Co. McKeesport.
American Tube & Iron Works. Middletown.
Gladstone Apt. House. Philadelphia.
Pennsylvania Iron Works. "
Phoenix Iron Co. "
Mutual Life Ins. Co. "
Carnegie Steel Co. Pittsburg.
Jos. Horne & Co. "
Westinghouse Building. "
Westinghouse Elec. Mfg. Co. "
Oliver Iron and Steel Co. "
Oil Well Supply Co. "
Oliver & Roberts Wire Co., (Limited). "
McCullough, Dalzell & Co. "

RHODE ISLAND.
Corliss Steam Engine Co. Providence.

VIRGINIA.
Old Dominion Cotton Mills. Richmond.

NOTE.—Many of our Filters are purifying water for boiler feed in addition to supplying filtered water for manufacturing and other purposes, and are not given under this Boiler Service classification.

BOTTLERS, BREWERS AND DISTILLERS.

Over 500 Establishments in this Classification, aggregating a Daily Capacity of 29,000,000 Gallons, up to July, 1896.

CALIFORNIA.
Buffalo Brewery.....Sacramento.
COLORADO.
Philip Zang Brewing Co.....Denver.
CONNECTICUT.
Connecticut Breweries Co.....Meriden.
ILLINOIS.
Northwestern Brewing Co.....Chicago.
KENTUCKY.
Frank Fehr Brewing Co.....Louisville.

LOUISIANA.
New Orleans Brewing Ass'n..New Orleans.
MICHIGAN.
National Brewery.....East Saginaw.
MISSOURI.
Anheuser Busch Brewing Ass'n..St. Louis.
NEW JERSEY.
Froelich & Kochler.....Newark.
NEW YORK.
Bartholomay Brewing Co.....Rochester.
OHIO.
Chris. Moerlein Brewing Co....Cincinnati.

OREGON.
North Pacific Brewery.....Astoria.
PENNSYLVANIA.
Keystone Brewing Co.....Pittsburg.
WASHINGTON.
Albert Brown Brewing Ass'n.....Seattle.
WEST VIRGINIA.
Schmulbach Brewing Co.....Wheeling.
WISCONSIN.
Val Blatz Brewing Co.....Milwaukee.

HOSPITALS, HOTELS, OFFICE BUILDINGS.

Over 350 additional Users in this Classification, not including 1648 Private Dwellings, up to July, 1896.

ARKANSAS.
Court House and Post Office....Ft. Smith.
CALIFORNIA.
Pacific Union Club.....San Francisco.
Preston School of Industry.....Ione.
CANADA.
Windsor Hotel.....Montreal.
St. Lawrence Hall....."
DISTRICT OF COLUMBIA.
Arlington House.....Washington.
Chamberlain's Hotel....."
The Shoreham....."
Columbia Athletic Club....."
FLORIDA.
Post Hospital.....Key West.
GEORGIA.
Kimball House.....Atlanta.
ILLINOIS.
U. S. Marine Hospital.....Lake View.
INDIANA.
St. Mary's Academic Institutions,St. Mary's.

KENTUCKY.
Custom House and Post Office..Louisville.
LOUISIANA.
Charity Hospital.....New Orleans.
Cosmopolitan Hotel....."
Grunewald Hotel....."
MISSOURI.
Centropolis Hotel.....Kansas City.
Columbia Club.....St. Louis.
Merchant's Exchange....."
Southern Hotel....."
Moser Hotel....."
NEBRASKA.
N. Y. Life Ins. Co. Bld'g.....Omaha.
The Millard Hotel....."
NEW JERSEY.
West End Hotel.....Long Branch.
NEW YORK.
Capital Building.....Albany.
Public Schools....."
Stanwix Hall....."
Executive Mansion....."
Auburn Prison.....Auburn.

NEW YORK—Continued.
Methodist Epis. Hospital...Brooklyn.
Iroquois Hotel....Buffalo.
New Netherlands Hotel....New York City.
N. J. Central R. R. Bld'g..."
Hotel Majestic....."
Roosevelt Hospital....."
Watervleit Arsenal.....W. Troy.
OHIO.
University Club.....Cincinnati.
Burnett House....."
PENNSYLVANIA.
Hotel Federal.....Allegheny.
Executive Mansion.....Harrisburg.
Girard College.....Philadelphia.
Monongahela House.....Pittsburg.
Hotel Anderson....."
RHODE ISLAND.
Newport Casino.....Newport.
TENNESSEE.
Hotel Luehrman.....Memphis.
WISCONSIN.
Pfister Hotel.....Milwaukee.

ICE MANUFACTURERS.

Partial List Up to July, 1896.

(See Also Brewers.)

CALIFORNIA.

Los Angeles Ice and Cold
Storage Co. Los Angeles.
Ventura Land & Power Co. San Francisco.

CONNECTICUT.

Griffin & McElroy..... Bridgeport.
New Haven Hygeia Ice Co.... New Haven.

DELAWARE.

The Lea Pusey Co..... Wilmington.
Remington Machine Co..... "

DISTRICT OF COLUMBIA.

Smith Transparent Ice Co.... Washington.

FLORIDA.

De Land Ice Mfg. Co. De Land.
Lake Region Ice and Refriger-
ating Co. Eustis.
Central City Ice Co. Gainesville.
Arctic Ice Co. Jacksonville.
Orlando Ice Mfg. Co. Orlando.
Palatka Ice Factory..... Palatka.
Sanford Ice Co. Sanford.
Tampa Ice Co. Tampa.

GEORGIA.

Polar Ice Co. Augusta.
Brunswick Brewing & Ice Co. Brunswick.
Planters' Oil, Guano & Ice Co. Macon.

ILLINOIS.

Distilled Water Ice Mfg. Co. Cairo.

INDIANA.

Home Ice Co. Evansville.

KENTUCKY.

E. W. Bewley Bowling Green.
Champaign Ice Co. Covington.
Graves Co. Water and Light
Co. Mayfield.
Paducah Ice Co. Paducah.
Somerset Ice Co. Somerset.

MARYLAND.

Crisfield Ice Mfg. Co. Crisfield.

MASSACHUSETTS.

Thomas White & Co. Brockton.

MISSOURI.

Consumers' Ice Co. St. Louis.
Griesedieck Artificial Ice Co. "
M. A. Seed Dry Plate Co. "
Carondelet Electric Light and
Power Co. "

NORTH CAROLINA.

Mecklenberg Ice Co. Charlotte.
Hygienic Plate Ice Co. Raleigh.

NEW JERSEY.

Knickerbocker Ice Co. Atlantic City.
Kreuger's Hygiene Ice Co. Newark.
Wells Ice Co. Sea Isle City.

NEW YORK.

Iroquois Hotel..... Buffalo.
Wm. Ottman & Co. New York City.
New York Hygeia Ice Co. "
New York Steam Co. "
A. & M. Robbins..... "
DeLa Vergne Refrigerating
Machine Co. "

OHIO.

Arctic Ice Co. Cincinnati.
Walnut Hills Artificial Ice Co. "
Coryville Artificial Ice Co. "
Cincinnati Ice Mfg. & Cold
Storage Co. "
Pictet Ice Works..... Cleveland.
Simon Linzer..... Zanesville.
W. P. Callahan & Co. Dayton.

OREGON.

Portland Ice Works..... Portland.

PENNSYLVANIA.

The Hendrick Mfg. Co. Carbondale.
Ice Mfg. Co. of Germantown. Germantown.
Chas. H. Suppes Johnstown.
Philadelphia Warehouse and
Cold Storage Co. Philadelphia.
Quaker City Cold Storage and
Warehouse Co. "
Glen Willow Ice Mfg. Co. "
Union Ice Mfg. Co. Pittsburg.
York Mfg. Co. York.
Consumers' Ice Mfg. Co. Chester.
Glen Willow Ice Mfg. Co. Manayunk.

SOUTH CAROLINA.

Charleston Ice Machine Co. Charleston.

TENNESSEE.

Bohlen-Huse Machine and Lake
Ice Co. Memphis.
Diamond Ice Co. Bristol.

TEXAS.

Crystal Ice & Mfg. Co. San Antonio.
Sherman Ice Co. Sherman.

VIRGINIA.

G. W. Spooner..... Charlottesville.
Linde, Smith & Co. Danville.
Transparent Ice Co. "
Lexington Ice Works..... Lexington.
Petersburgh Crystal Ice Co. Petersburg.
J. B. Worth & Co. "
Transparent Ice Co. Richmond.
Crystal Ice Co. "
Diamond Ice Co. Roanoke.

WASHINGTON.

Union Ice Co. Tacoma.

CUBA.

Benitez, Sobrino & Co. Havana.
Nueva Fabrica de Hileo..... "

WEST INDIES.

A. S. Plews..... Barbadoes.

LAUNDRIES, COLLAR AND SHIRT MANUFACTURERS, ETC.

Over 450 Establishments, aggregating 6,000,000 Gallons Daily Capacity in this Classification, up to July, 1896.

CONNECTICUT.

Hutchinson, Pierce & Co. Bridgeport.

MARYLAND.

Cheasapeake Shirt Co. Baltimore.

MASSACHUSETTS.

Sprague, Brimmer Mfg. Co. Pittsfield.

Henrici Laundry Machinery Co. Chelsea.

MISSOURI.

National Laundry. St. Louis.

American Steam Laundry. "

Gate City Laundry. Kansas City.

NEW JERSEY.

Levi, Wechsler & Co. Paterson.

NEW YORK.

Jos. Fowler Shirt and Collar Co. Glen Falls.

Cook, James & Co. Lockport.

International Shirt & Collar Co. Troy.

Cluett, Coon & Co. "

Earl & Wilson. "

Tim Wallerstein & Co. "

Miller Hall & Hartwell. "

Binghamton Steam Laundry. Binghamton.

Gardiner & Vail. New York City.

OHIO.

The American Toilet Supply Co. Cincinnati.

PENNSYLVANIA.

Jacob Miller Sons & Co. Philadelphia.

John Wanamaker. "

TENNESSEE.

Memphis Steam Laundry. Memphis.

PAPER MAKERS.

CANADA.

Maritime Sulphite Fibre Co. Chatham, N. B.

Laurentide Pulp Co. Ltd. Grand Mere, P. Q.

CONNECTICUT.

The Peter Adams Co. Buckland.

F. R. Walker & Son, Eagle

Mills. Burnside.

Anchor Mills Paper Co. Windsor Locks.

Seymour Paper Co. "

DELAWARE.

Curtis & Bro. Newark.

Jessup & Moore Paper Co. Wilmington.

MASSACHUSETTS.

L. L. Brown Paper Co. Adams.

Crane & Co. Coltsville.

Z. Crane, Jr., Bros. Dalton.

Crane & Co., U. S. Treasury

Mills. "

Fairfield Paper Co. Fairfield.

George W. Wheelwright Paper

Mfg. Co. Fitchburg.

Fitchburg Paper Co. "

George W. Wheelwright Paper

Co. Furnace.

MASSACHUSETTS—Continued.

Waugren Paper Co. Holyoke.

Newton Paper Co. "

Riverside Paper Co. "

Geo. R. Dickinson Paper Co. "

Parsons Paper Co. "

Riverside Mills. "

Linden Paper Co. "

Valley Paper Co. "

Albion Paper Co. "

Whiting Paper Co. "

Massasoit Paper Co. "

Chemical Paper Co. "

Syms & Dudley Paper Co. "

Nonotuck Paper Co. "

Crocker Mfg. Co. "

George W. Wheelwright &

Co. Leominster.

Southworth Co. Mittineague.

Carew Mfg. Co. S. Hadley Falls.

Crane Bros. Westfield.

MAINE.

Otis Falls Pulp Co. Livermore Falls.

Mfg. Investment Co. Madison.

Rumford Falls Paper Co. Rumford Falls.

NEW JERSEY.

Diamond Mills Paper Co. Milburn.

NEW YORK.

Huyck & Argersinger. Albany.

Fort Orange Paper Co. Castleton.

Whiteman Paper Mills. Dansville.

Duncan & Co. Mechanicsville.

Adams & Bishop Paper Co. Newburg.

Genesee Paper Co. Rochester.

Arlington Mills, H. Powell

Ramsdel. Salisbury Mills.

Ticonderoga Pulp and Paper

Co. Ticonderoga.

Gilbert & Bell. Waterford.

OHIO.

Harding Paper Co. Middletown.

PENNSYLVANIA.

The Ashland Paper Mills. Manayunk.

Mt. Holy Paper Co. Mt. Holly Springs.

Martin & Wm. H. Nixon. Philadelphia.

P. H. Glatfelter. Spring Forge.

VIRGINIA.

Richmond Paper Mfg. Co. Richmond.

WISCONSIN.

Falls Mfg. Co. Oconto Falls.

These Paper Mill Filter Plants range from 500,000 to 4,000,000 Gallons Daily Capacity each, and the above list includes many second orders.

TEXTILE.

CANADA.

Belding, Paul & Co.....Montreal.
Penman Mfg. Co.....Paris.

CONNECTICUT.

Willimantic Linen Co.....Willimantic.
Cheney Bros.....S. Manchester.
The New England Co.....Rockville.
Hockanum Co....."

GEORGIA.

Sibley Mfg. Co.....Augusta.

ILLINOIS.

J. Capps & Son, Ltd.Jacksonville.

INDIANA.

Wayne Knitting Mills.....Fort Wayne.

KENTUCKY.

Pioneer Worsted Co.....Louisville.

MARYLAND.

Thos. Footer & Son.....Cumberland.

MASSACHUSETTS.

Canton Mfg. Co.....Boston.
Kerr Thread Co.....Fall River.
Hadley Co.....Holyoke.
Border City Mfg. Co.....Fall River.
Worcester Bleach and Dye
Works Co.....Worcester.

MICHIGAN.

Amazon Hosiery Co.....Muskegon.

MISSOURI.

Morse Wool Scouring Co.....St. Louis.

NEW JERSEY

Jas. Chadwick & Bro.....Greenville.
Clark Thread Co.....Newark.
Norfolk & New Brunswick
Hosiery Co.....New Brunswick.
Clark Mile End Spoel Cotton Co.E.Newark.
Ross & Baker.....Port Oram.
Raritan Woolen Mills.....Raritan.
Priestly & Co.....Camden.

NEW YORK.

G. T. Stoneman.....Albany.
Victoria Knitting Mills.....Cohoes.
Newman & Adams....."
Le Roy & Lamb....."
John Scott & Sons....."
Troy Mfg. Co....."
Starr Knitting Co....."
Horrocks & Van Benthuyssen....."
W. H. & D. Aikin....."
J. W. Himes....."
Neil & McDowell....."
Anchor Hosiery Mills....."
Henry S. Bogue....."
Parsons Mfg. Co....."
Root Mfg. Co....."
Rankin Knitting Co....."
Root & Waterman....."
Munson Mfg. Co....."
Marks Mfg. Co.....Herkimer.
Minetto Shade Cloth Co.....Minetto.
Knitting Co. of Mohawk.....Mohawk.
Mohawk Valley Knitting Co.....Mohawk.
Rob Roy Hosiery Co.....Troy.

NEW YORK—Continued.

Waterford Knitting CoWaterford.
Ford & Pynes....."
Utica Knitting Co.....Utica.

OHIO.

Teasdale Dye HouseCincinnati
The Jos. Turner & Sons Mfg. Co.Kent.
The Stearns & Foster Co.....Lockland.

PENNSYLVANIA.

L. & S. Sternberger.....Philadelphia.
Quaker City Dye Works Co....."
Sauquoit Silk Mfg. Co....."
Starr & Crescent Mills Co....."
Hamilton Finishing Works....."
John Bromley & Sons....."
Horner Bros. Carpet Co....."
Powell & Bro....."
Frederick Rumpf & Bro....."
J. B. Stetson & Co....."
Firth & Foster Bros....."
Pilling & Madeley....."
Pilling Mfg. Co....."
R. Greenwood and Bault....."
J. R. Foster & Sons....."
Lackawanna Mills.....Scranton.
Scranton Lace Curtain Mfg.Co....."

RHODE ISLAND.

Phoenix Woolen Co.....East Greenwich.
Valley Worsteds Mills.....Providence.

VIRGINIA.

John N. Stearns & Co.....Petersburgh.
Old Dominion Cotton Mills.....Richmond.

SUGAR REFINERS.

Agricultural Department U. S. Government, Magnolia Plantation, Lawrence, La.

CUBA.

Trinidad Sugar Co.....Trinidad.

LOUISIANA.

Caffery Central Refinery.....Franklin.
Burdon Central Sugar Refin-
ing Co....."
Agricultural Department U.S.
Government, Magnolia
Plantation.....Lawrence.
Louisiana Sugar Refining Co.New Orleans.

LOUISIANA—Continued.

Hon. H. C. Warmouth..New Orleans.
Duncan F. Kenner....."
Wm. Henderson....."
Planters' Sugar Refining
Co....."
American Sugar Refining
Co....."
Daniel Thompson, Calu-
met Plantation.....Pattersonville.
E. F. Rogers.....St. Charles Parish.

MISSOURI.

St. Louis Sugar Refining Co.....St. Louis.
Belcher Sugar Refinery....."

NEW JERSEY.

F. O. Matthiessen & Wiechers.Jersey City.

NEW YORK.

Decastro & Donner.....Brooklyn.

PENNSYLVANIA.

McKean, Borie & Co.....Philadelphia.
Franklin Sugar Refining Co....."

A FEW LETTERS FROM VARIOUS USERS.

HUNDREDS OF OTHERS UPON APPLICATION.

BOILER.

DEPARTMENT OF WATER WORKS,

New York, December 15th, 1896.

Dear Sir:

There has been in use at our 98th Street pumping station two New York filters, filtering the water from a surface condenser for boiler use, and they have performed their duty satisfactorily.

Yours,
G. W. BIRDSALL,
Chief Engineer.

BOTTLER.

STANDARD BOTTLING AND EXTRACT CO.,

242-48 Federal Street,

Boston, Mass., May 31, 1892.

We have been using one of your water Filters for five years, and consider it indispensable in our business. It is easily manipulated, and does the work first-class. Can cheerfully recommend it to every bottler.

Yours very truly,
W. O. TUTTLE & CO.

BREWER.

THE O'KEEFE BREWERY CO. OF TORONTO, Limited,

Toronto, February 27, 1897.

Gentlemen:

The Filter you placed in our Brewery nearly two years ago has given unbounded satisfaction. We have not had the slightest trouble with it from the time it was put in to the present. Our engineer suggested that it would be advisable to write you and ask if it would be necessary to refill with sand and coke, as a portion of each might be worn by friction. We have no reason for thinking that we are correct in our conjecture, as the water comes out crystal fine.

Yours truly,

THE O'KEEFE BREWERY CO., Ltd.

HOTEL.

HOTEL LUEHRMANN,

Memphis, Tenn., January 17, 1890.

I take pleasure in saying that your Filter is a great success in removing the iron from the Artesian water drawn from a 500-foot well. It was almost impossible to use the water for any purpose, but since I am running same through your Filter I use it for laundry and throughout the whole house. It has given me great satisfaction, and I would not be without one for four times the amount paid for same. I can cheerfully recommend its use to anybody being in need of such an article.

Yours very truly,
HENRY LUEHRMANN.

HOUSE.

H. W. HITZROT, M.D., 226 Fifth Avenue,

McKeesport, Pa., March 22, 1892.

The Filter bought from you does its work to perfection and makes a friend of every one who drinks a glass of the pure, sparkling water that it brings to the faucet. It does more than is promised, and my family would not do without it for five times its cost. The use of alum as a coagulant cannot be objected to by any one who has even an elementary knowledge of chemistry, for the organic matter, the most poisonous of substances in drinking water, is rendered innocuous by its use, and I do not think analysis would detect free ammonia in the water from your Filter, for even should there be an excess, it would precipitate on filtration as hydrate of alumina.

Respectfully,
H. W. HITZROT, M. D.

ICE MANUFACTURERS.

BOHLEN-HUSE MACHINE AND LAKE ICE CO.

57 Madison Street,

Memphis, Tenn., May 31, 1892.

Answering your request for a report of our experience with the use of your Filters up to date, I will state that we are using three 50-inch by 6 feet diameter Filters in our two large

A FEW LETTERS FROM VARIOUS USERS—CONTINUED.

ice factories which make an aggregate of about 160 tons of ice per day. We have had and are having splendid results with these Filters, indeed they give us no trouble at all, only that they have to be cleaned about once a month by reversing the current and washing out. I think we are in the fifth year with one of these filters, in the third year with another, and the second with the last one; all do good work and we cheerfully recommend them to the ice trade generally.

Very respectfully yours,

BOHLEN-HUSE MACHINE LAKE ICE CO.

R. C. GRAVES, Treasurer.

LAUNDRY.

EARL & WILSON,

Manufacturers of Men's Linen Collars and Cuffs,
Broadway, cor. of Seventh Street.

Troy, N. Y., June 4, 1892.

We desire to publicly express our appreciation to your Company. We have used your Filter for eight years, and can get fifteen gallons of pure water a minute. We are perfectly satisfied with its workings. Could not get along without it.

Gratefully yours, EARL & WILSON.

OFFICE BUILDING.

COMMERCE INSURANCE COMPANY.

Albany, N. Y., August 4, 1892.

It affords us pleasure to commend the use of filtering apparatus generally for cleansing and purifying our river water for household and other uses, but my experience has been principally of the great benefits derived from using your Filters, of which two are used in "Commerce Block" (two buildings) and two more in the dwellings of the writer and his son-in-law, E. D. Jenison, on Lancaster street. The Filters have given entire satisfaction to the tenants of offices and stores in the Commerce Block, and aided us in procuring tenants, while for those in our dwellings we would not take \$500 each if others could not be obtained. They are now necessities for our home life, as they give us potable clean water for bathing, cooking, drinking and washing.

Very truly yours, G. A. VAN ALLEN.

PAPER MANUFACTURER.

THE RIVERSIDE PAPER COMPANY.

Holyoke, Mass., February 23, 1897.

In reply to yours would say, we have in our No. 1 Mill three of the type of Filters made by you. Two of them have been in constant use for eight and one-half (8½) years, and have never failed to do all that was guaranteed for them either in quality or quantity of bright clear water, no matter what condition the river water was in.

In our No. 2 Mill we have five of your Filters in use about three and one-half (3½) years. They are working equally as well. For making our high grade papers we depend entirely upon these filters and we know of no other make of filters that could take their place.

Yours truly, RIVERSIDE PAPER CO.

By J. W. TOOLE, Supt.

TEXTILE MANUFACTURER.

MOHAWK VALLEY KNITTING MILLS, LIMITED.

Mohawk, N. Y.

We have used your filter nearly two years with the greatest of satisfaction. By it we are enabled to discontinue the use of village water at a saving of \$1.00 per day tax, and to substitute canal water, which is soft, at a saving of \$800.00 per year on our soap bill.

Our company were so well pleased with the result in this mill, they put in one of your filters at the other mill.

I must say in closing, you deserve success this coming season, and anything we can do in the line of reference, please use us. Yours truly,

THE MOHAWK VALLEY KNITTING MILLS, L'T'D.,
W. P. BRAYTON, Supt.

NOTE: The saving in soap referred to, amounting to \$1,165 per annum, was effected by one of our filters costing the Mohawk Valley Knitting Mills, \$630, thus verifying our oft repeated claim that our filters prove a valuable investment and not an expense.

SCHEDULE OF VARIOUS SIZES OF "NEW YORK" FILTERS.

PRESSURE TYPE.

Diameter.	Height of Filter Case.	Inlet and Outlet Pipes.	Waste Pipe.	† Capacity in U. S. Gallons.			Approximate Shipping Weights.—Lbs.			Test Pressure per Square inch.
				Minute.	Hour.	24 Hours.	Case.	Parts.	Filter Bed	
12 in.	4 ft.	$\frac{3}{4}$ in.	1 in.	2-3	120-180	2,880-4,320	275	125	300	100 lbs.
16 in.	4 ft.	$\frac{3}{4}$ in.	1 in.	3-5	180-300	4,320-7,200	370	135	450	100 "
20 in.	4 ft.	1 in.	1 in.	5-7	300-420	7,200-10,000	545	200	600	100 "
30 in.	5 ft. 3 in.	$1\frac{1}{2}$ in.	$1\frac{1}{2}$ in.	10-15	600-900	14,400-21,600	1,500	300	1,800	100 "
40 in.	6 ft. 2 in.	2 in.	2 in.	20-30	1,200-1,800	28,800-43,200	1,625	660	2,925	100 "
50 in.	6 ft. 7 in.	$2\frac{1}{2}$ in.	$2\frac{1}{2}$ in.	30-40	1,800-2,400	43,200-57,600	2,350	875	4,675	100 "
5 ft.	7 ft. $6\frac{1}{2}$ in.	$2\frac{1}{2}$ in.	$2\frac{1}{2}$ in.	40-60	2,400-3,600	57,600-86,400	3,400	969	7,625	100 "
$6\frac{1}{2}$ ft.	7 ft. 9 in.	3 in.	3 in.	70-100	4,200-6,000	100,800-144,000	5,100	1,320	12,750	100 "
8 ft.	8 ft. 11 in.	4 in.	4 in.	100-150	6,000-9,000	144,000-216,000	9,465	2,081	19,625	100 "
10 ft.	8 ft. 11 in.	6 in.	6 in.	170-250	10,200-15,000	244,800-360,000	14,500	3,975	31,625	100 "
*8 ft.	20 ft. long.	8 in.	8 in.	300-400	18,000-24,000	432,000-576,000	18,050	6,941	61,000	100 "

* Horizontal.

GRAVITY TYPE.

10 ft.	8 ft.	6 in.	6 in.	150-250	9,000-15,000	216,000-360,000	3,800	4,669	33,125	—
13 ft.	8 ft.	6 in.	8 in.	250-400	15,000-24,000	360,000-576,000	5,000	6,185	55,250	—
15 ft.	8 ft.	6 in.	8 in.	350-550	21,000-33,000	504,000-792,000	6,300	6,965	72,875	—

† Figure minimum capacity for Western States where the water is generally much more turbid than in Eastern States.

The Pressure Filters can be made to withstand any required pressure up to 200 pounds, at additional cost for strengthening same.
The Wooden Gravity Filters are shipped "Knocked Down."

Delivery in all cases f. o. b. our Works, Newark, N. J.

See Cuts on Pages 6, 9, 10, 11, 12, 15.

In Writing for information regarding
Filtration, please state :

- 1st**—What is the source of water supply?
- 2d**—The size of supply pipe to filter.
- 3d**—The maximum pressure in the supply pipe.
- 4th**—The maximum quantity of water used per minute.
- 5th**—Is the water clear, turbid, hard or soft?
- 6th**—Has the water any odor or taste, or does it contain any vegetable matter?
- 7th**—Is the water used for drinking or for mechanical purposes?
- 8th**—If water is for boiler feed, please state horse-power of boiler and the steam pressure carried.
- 9th**—Send us copy of any analysis of the water you have.

Upon the receipt of the information above requested, we will answer by return mail or we will give the matter personal attention; we will, in all cases, *guarantee* results to be satisfactory in every particular.

Schedule of Various Size Filters on Page 30.

THIS HALF PAGE CAN BE DETACHED AND RETURNED TO US.

In Writing for Information regarding Filtration, please state :

- 1st**—What is the source of water supply?
- 2d**—The size of supply pipe to Filter
- 3d**—The maximum pressure in the supply pipe
- 4th**—The maximum quantity of water used per minute
- 5th**—Is the water clear, turbid, hard or soft?
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Date

Name

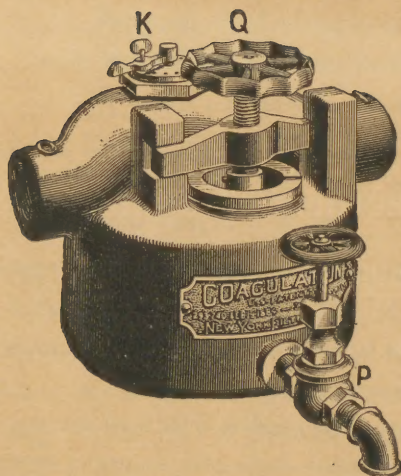
Address

Town and State

Schedule of Various Size Filters on Page 30.

BOILER FEED.

See List on page 23.



COAGULANT TANK.

The principal trouble met with in boiler feed water is due to matters in suspension, such as clay, vegetable matter, etc., also the grease and oil in condensed steam water. All of the above matters can be removed by our regular system of coagulation and filtration, whether the water be hot or cold, as it goes through the Filters direct to the Boilers.

Matters in suspension like carbonates and sulphates of Lime and Magnesia can only be removed by chemical treatment or by *Our Circulating System.*

Particulars on application.

NEW YORK FILTER MFG. CO.

120 LIBERTY ST., N. Y.

New York Filter Manufacturing Company

Beard Building, 120 Liberty Street

New York

